

Fig. 1

3000 Series DATA COLLECTION MODE

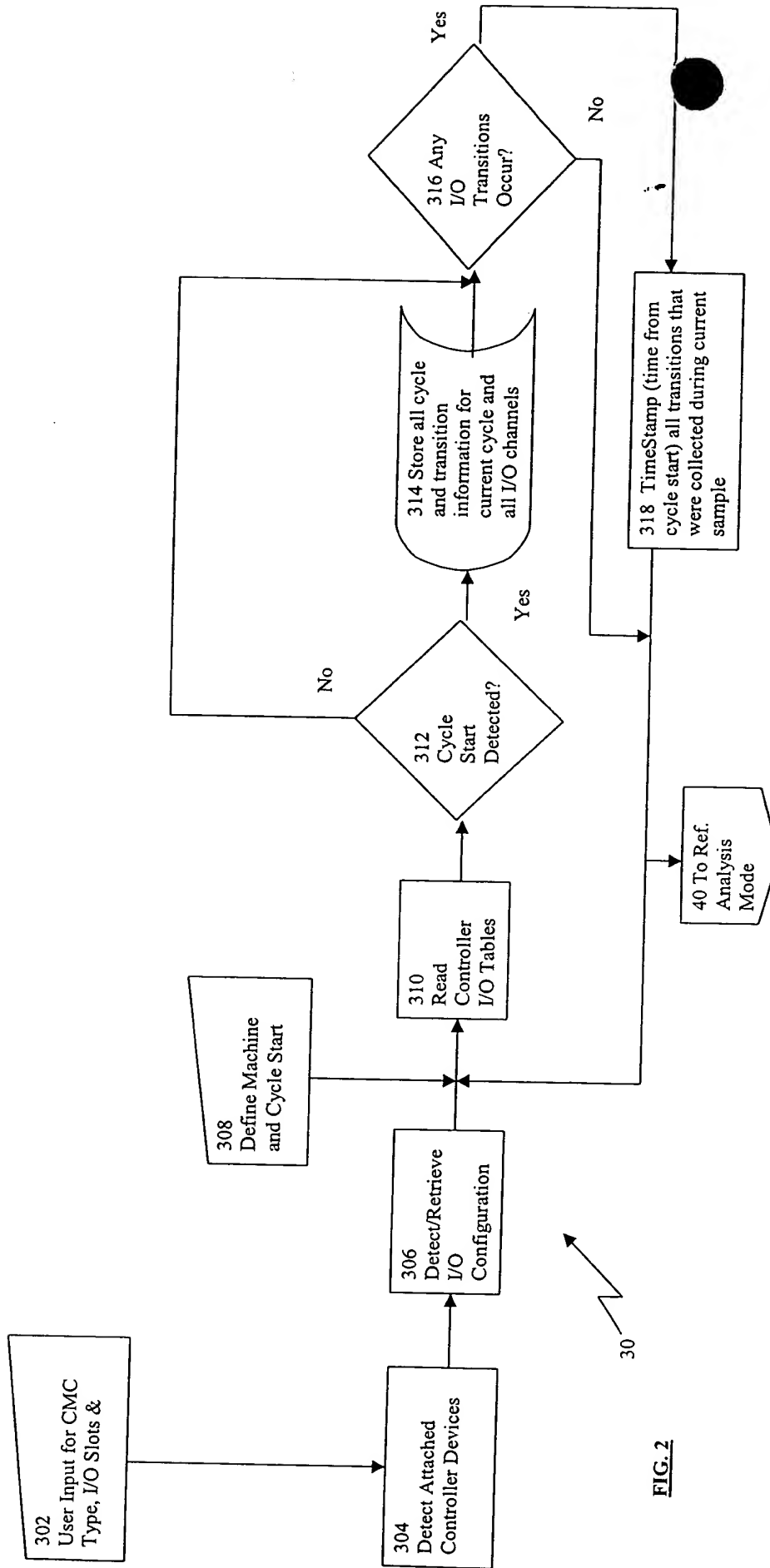


FIG. 2

DIAGNOSTIC RUN MODE

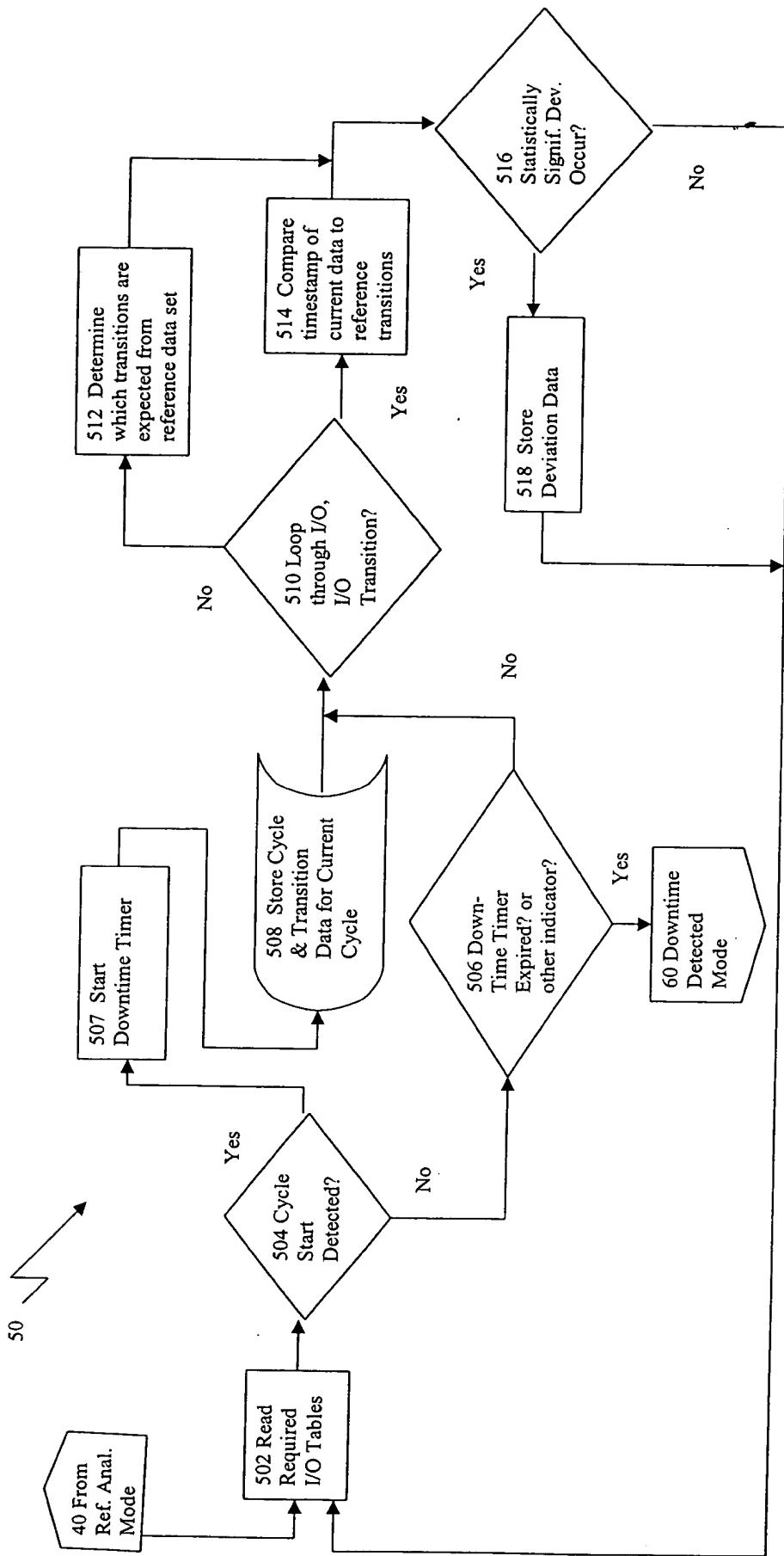


Fig. 4

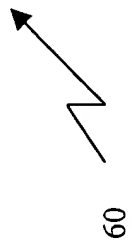
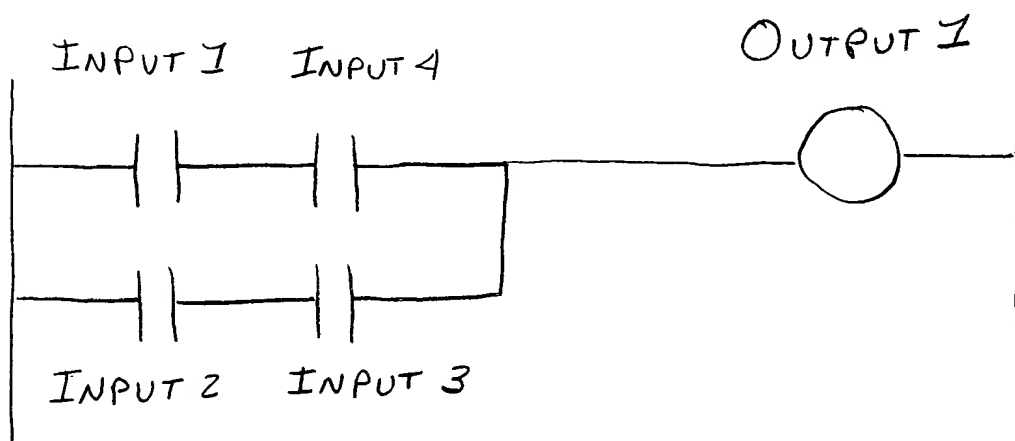
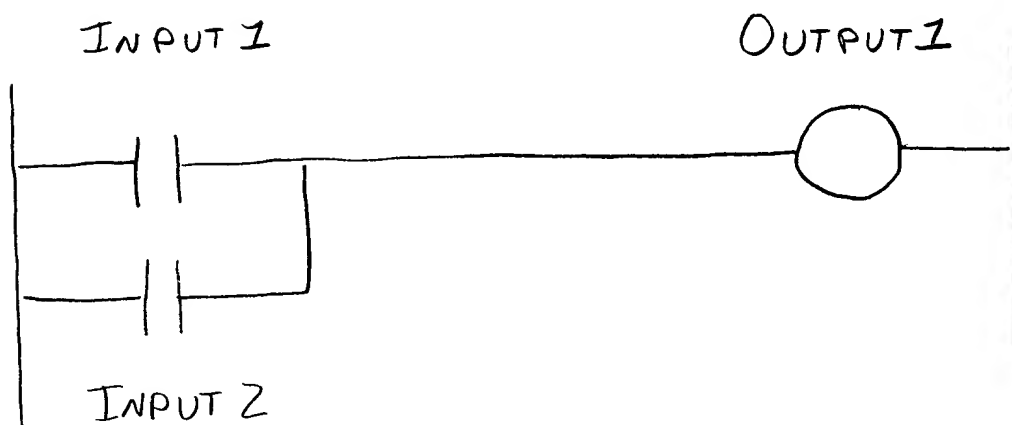
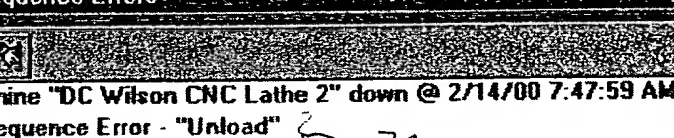
[illegible]

FIG. 5





Sequence Errors

Machine "DC Wilson CNC Lathe 2" down @ 2/14/00 7:47:59 AM

Sequence Error - "Unload" 74

Abnormal Input(s)

1. - "Unload Feedback"
2. - "Gage Feedback"

76

F16.9

Historical Cycles

☒ Reference ☐ Historic

Ref. Mode: Cycle Ref.

| Cycle Start | Cycle # |
|--------------------|---------|
| 2/15/00 1:41:25 PM | 29 |
| 2/15/00 1:41:51 PM | 30 |
| 2/15/00 1:42:17 PM | 31 |
| 2/15/00 1:42:43 PM | 32 |
| 2/15/00 1:43:09 PM | 33 |
| 2/15/00 1:43:35 PM | 34 |
| 2/15/00 1:44:01 PM | 35 |
| 2/15/00 1:44:27 PM | 36 |
| 2/15/00 1:44:53 PM | 37 |
| 2/15/00 1:45:19 PM | 38 |
| 2/15/00 1:45:33 PM | 39 |
| 2/15/00 1:46:34 PM | 41 |

☒ Auto ☐ Show Dry Error

80
↙

82

Fig. 10

000530" 930532

Statistical Reference Analysis for Machine Virtual Test Machine 2

Save as Reference Profile

Reference Name Reference 1 all

Delete

Cancel

Signals

M2_IN_CYCLE
M2_CORES_IN
M2_DIE_CLOSE
M2_SLOW_SHOT
M2_FAST_SHOT
M2_DWELL
M2_DIE_OPEN
M2_CORES_OUT
M2_EJECT_PART
M2_END_CYCLE
M2_STOP

| Cycle Start | Cycle # | Initial State | Cycle Time (s) | Trans(1) | Trans(2) |
|--------------------|---------|---------------|----------------|----------|----------|
| 8/21/00 9:16:24 AM | 46 | Off | 24.019 | (+1.572 | (-4.116 |
| 8/21/00 9:16:49 AM | 47 | Off | 23.760 | (+1.673 | (-4.397 |
| 8/21/00 9:17:12 AM | 48 | Off | 22.464 | (+1.603 | (-4.207 |
| 8/21/00 9:17:35 AM | 49 | Off | 23.328 | (+1.772 | (-4.516 |
| 8/21/00 9:17:58 AM | 50 | Off | 22.982 | (+1.573 | (-4.206 |
| 8/21/00 9:18:21 AM | 51 | Off | 23.587 | (+1.493 | (-3.996 |
| 8/21/00 9:18:45 AM | 52 | Off | 23.328 | (+1.573 | (-4.106 |
| 8/21/00 9:19:08 AM | 53 | Off | 22.464 | (+1.883 | (-4.727 |
| 8/21/00 9:19:30 AM | 54 | Off | 22.550 | (+1.803 | (-4.527 |
| 8/21/00 9:19:53 AM | 55 | Off | 22.205 | (+1.562 | (-4.106 |
| 8/21/00 9:20:15 AM | 56 | Off | 23.501 | (+1.782 | (-4.606 |
| 8/21/00 9:20:39 AM | 57 | Off | 23.069 | (+1.493 | (-4.116 |
| 8/21/00 9:21:02 AM | 58 | Off | 21.514 | (+1.462 | (-3.985 |
| 8/21/00 9:21:23 AM | 59 | Off | 23.328 | (+1.562 | (-4.186 |
| 8/21/00 9:21:47 AM | 60 | Off | 23.846 | (+1.703 | (-4.316 |
| Average | | | 23.139 | (+1.636 | (-4.273 |
| Range | | | | 0.421 | 0.742 |
| Std Deviation | | | | 0.114 | 0.206 |
| Probability | | | | 100.0% | 100.0% |



FIG. 11

90

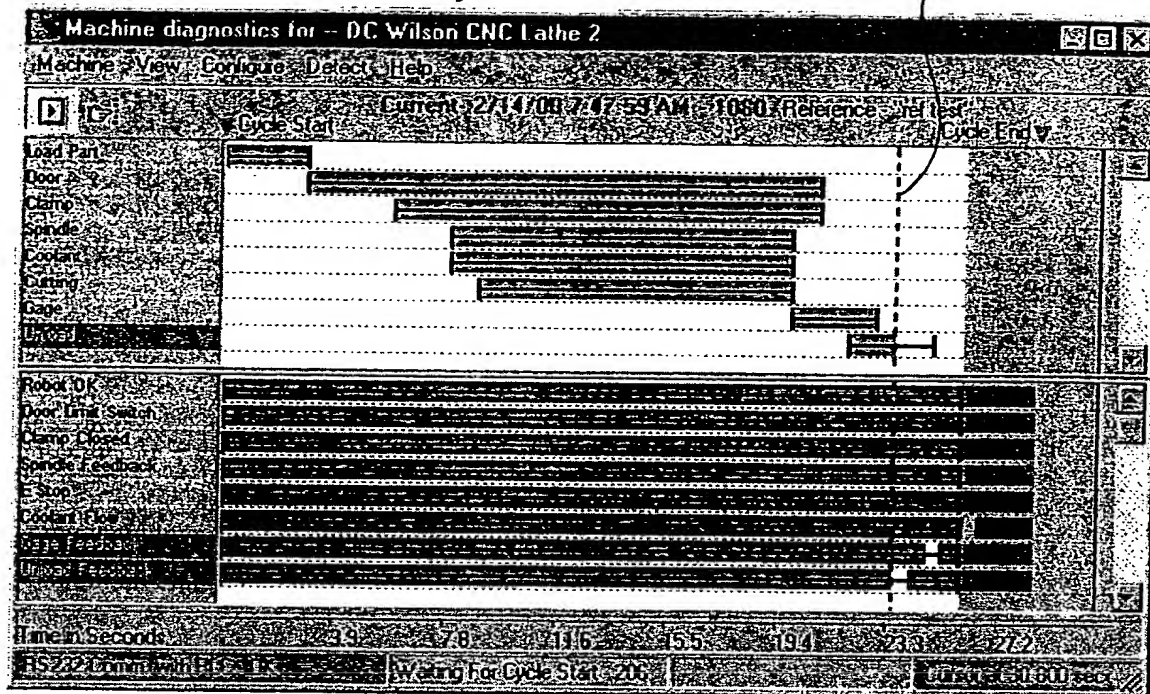


FIG. 13

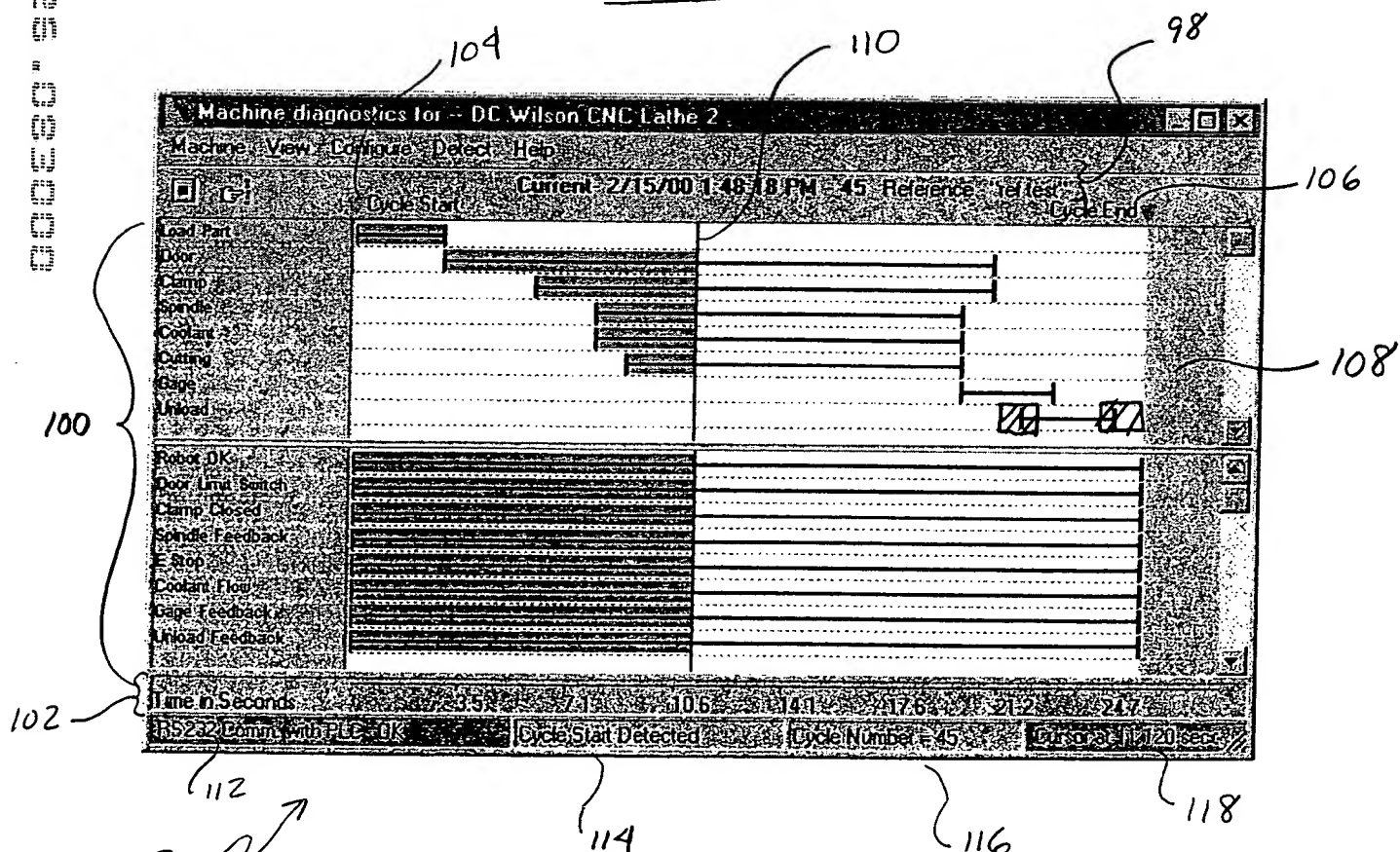


FIG. 12

000000" 32305960

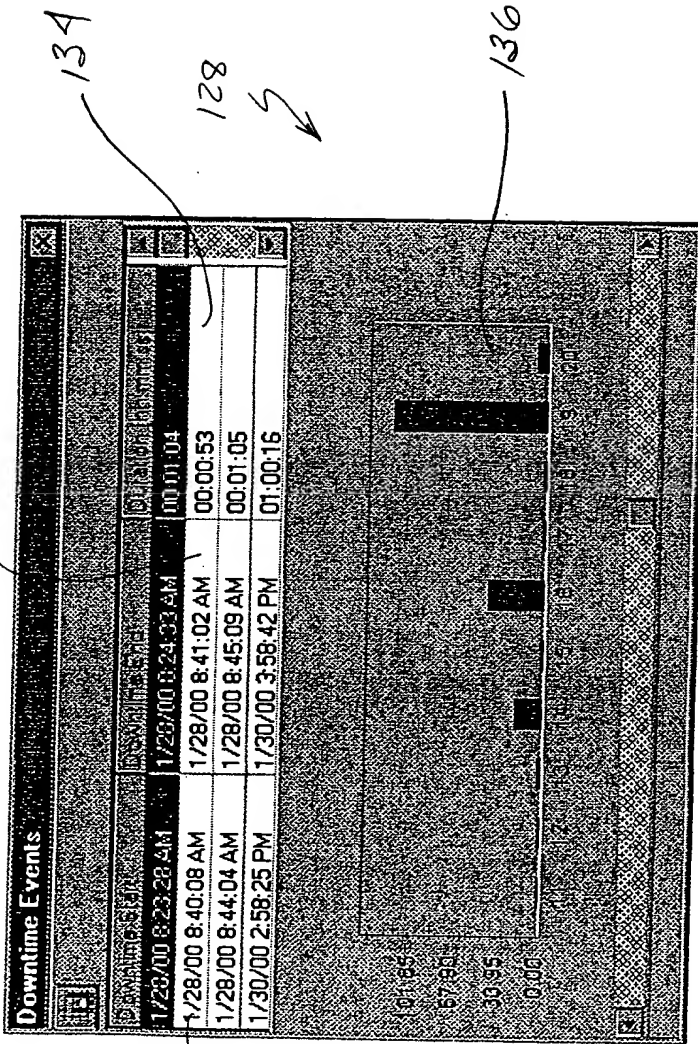
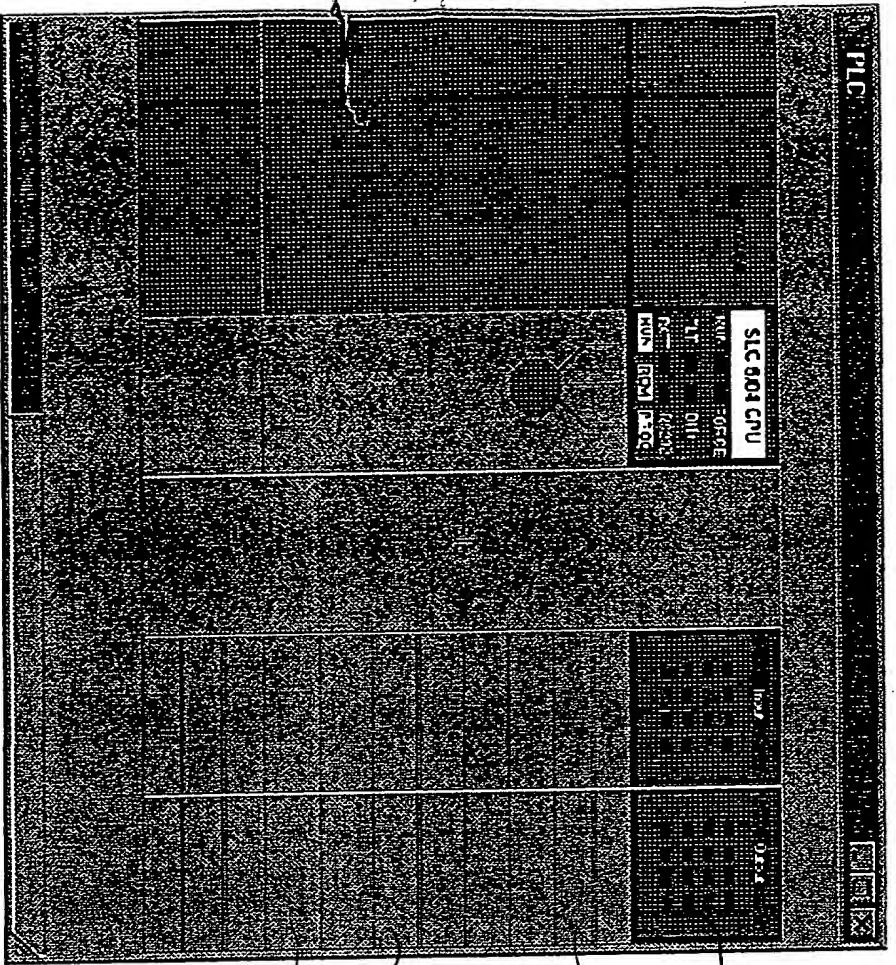


FIG. 16

000000 52505960



152

154

150

154

154

154

FIG. 18